

Fall 2011

The Quarterly Hail

National Weather Service - Hastings, Nebraska

Volume 1, Issue 3

Notes From the Meteorologist In Charge - *Steve Eddy*

It is with heavy heart I write for this edition of the Quarterly Hail. Larry Wirth, Hydro-Meteorological Technician at our office, lost his long battle with cancer. He will be sorely missed and leaves us with big shoes to fill. His tenacity, perseverance, optimism and unwillingness to give up rings true in all of us and up-lifts us, especially on our "bad" days. With this in mind, even though Larry is the second co-worker we have lost in the last few months, the staff is holding up well. They have rededicated themselves to working harder than ever in honor of our two comrades. Our two friends would insist we move on and improve.

With that in mind, we have begun the process of filling their vacated positions, and have selected a new Electronic Technician named Michael Bergmann. Mike is coming to us from a distinguished Air Force career in electronics. He has extensive knowledge and experience in radar and his interview suggests he is skilled in many other areas of equipment and building maintenance. We welcome him to our team and look forward to him and his family settling into the office and community. He is scheduled to begin working at our office the end of September.

The search to fill the vacancy for Larry's position will begin very soon. We hope to have his replacement on station by late October, or mid November latest. We will share with you information on the selectee as the process unfolds.

Finally, as autumn approaches, keep in mind the next few months can bring a variety of weather, including lingering severe thunderstorms and tornadoes, but also a taste of the winter to come. We will have to be prepared for all kinds of impacts due to the weather. Keeping in step with a theme of "readiness", the National Weather Service has unveiled a new program called the "National Weather-Ready Dialogue". The overall focus of this program is to get the word out in the press that the NWS wants to engage the nation in a dialogue about how we as a nation can be better prepared for hazardous weather events. The ultimate goal is to find out how we as a government agency can better meet the needs of the general public when supplying them with hazardous weather information. This year's devastating losses in human life and property due to tornadoes highlight the concern and need for this dialogue. We will be providing more information on how you can be a part of this dialogue very soon.

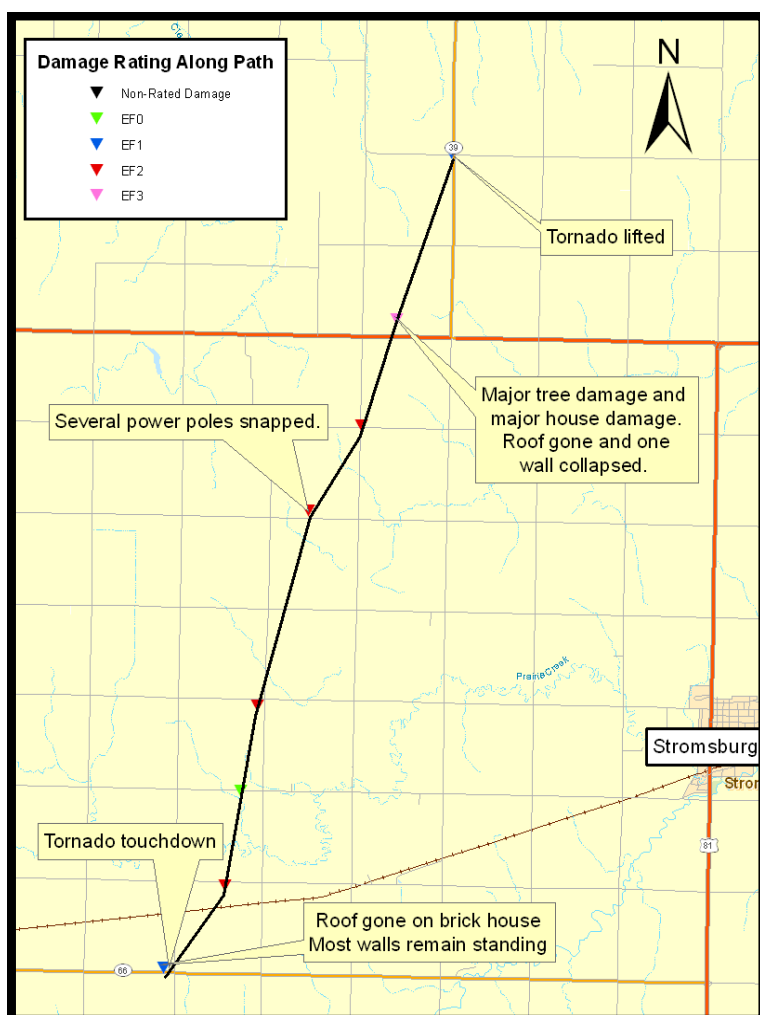


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Special Points of Interest:

- Read about one of our Coop observers who takes wheat harvesting to a new level.
- Find out how the weather service supported Missouri River Flood control operations.
- What are the average first "hard" freeze dates for my area?



As we roll into fall, we can begin to take a look at the spring/summer convective season as it begins to wind down.

Numerous tornadoes were reported across the region this season, causing damage to many locations. While damage surveys were conducted it became apparent that GIS could help play a role in determining tornado tracks and visualization of the actual damage path. Damage survey teams sometimes had a difficult time determining where exactly tornado paths were located. Sometimes damage occurred in fields or other places where NWS employees couldn't readily access. After they gathered as much information as they could, teams brought their data into the office to draw up the tornado path. Damage points were plotted with GIS at every broken tree, overturned pivot, destroyed house, etc., and then lines were drawn to connect the points into a tornado track.

On June 20th, 2011, a severe tornado outbreak blew through south central Nebraska. This system developed as many as 12 tornadoes across the region. The picture you see is the track map of the EF3 tornado that moved just west of Stromsburg. The triangles represent the points

where damage was noted and the Enhanced Fujita Scale rating based on the extent of the damage. The pink triangle represents EF3 damage which was major damage to a house. The main black line indicates the estimated center track of the tornado. This map helps to determine the relationship between each of the damage points and also its relation to highways and towns.

Coop Awards

We are especially proud at this time to honor our Cooperative Observers with length of service awards. Several of our observers across our area have been dedicating their time to the program for many years.

The Clay Center Sheriff's Office received a 25-year Length of Service Honored Institution Award. The Sheriff's office has been the official cooperative observer for daily maximum and minimum temperatures and precipitation measurements for the Clay Center area since July 1, 1986. During their 25 years of data collection, they have measured 716.77 inches of rain and 416.3 inches of snow. The highest rainfall measured in a single 24 hour period, since 1986, was 7.20 inches on July 30, 1998, and the highest snow fall measured in a 24 hour period, since 1986, was 13.0 inches on November 1, 1991. The wettest year during this time frame was 1993, with 44.05 inches of rain.



Coop Awards *continued...*



Mr. Rex Liedtke received a 25-year Length of Service Award. Mr. Liedtke has been the official Cooperative Weather Observer for the National Weather Service near Gresham, Nebraska, since August 1, 1986. During his 25 years of data collection, he has measured 689.58 inches of rain and 596.2 inches of snow. The highest rainfall measured in a single 24 hour period, since 1986, was 5.45 inches on August 25, 1987, and the highest snow fall measured in a 24 hour period was 12.0 inches on October 26, 1997. The wettest year during this time frame was 2008, with 40.11 inches of rain.

Employee Spotlight - Lead Forecaster Merl Heinlein

I was born in Dunedin, FL, mostly raised in Danville, IN, although my family lived in Estill County, KY a short while before moving to Indiana. While in Indiana, I competed in baseball, basketball, tennis, track, weight lifting, and was involved in piano and choir competitions as well. While in high school, I advanced to final 16 players in the Indiana High School Boys Tennis Tournament and also won multiple awards in piano competitions.

After graduating from Danville Community High School, I attended Northland College, located in Ashland, WI. I received my B.S. degree in Earth Science with an emphasis in Meteorology and with an academic minor in Mathematics. While in Wisconsin, I was heavily involved with music, specializing in singing with small early music Renaissance and Baroque a capella groups and played the harpsichord (an early period keyboard instrument) with the Chequamegon Bay Symphony Orchestra. I toured the eastern and central United States and also in Poland and Germany with other music ensembles. I was the organist for Gloria Dei Lutheran Church in Mason, WI while living in northern Wisconsin. I loved the north woods of Wisconsin and I participated in mountain biking, kayaking, white water rafting, hiking, softball, and tennis. After graduating from Northland College, I worked full time at the college for two years, including working as the Acting Director of Residential Life.



I moved on to earn my M.S. (Research) degree in Meteorology from Saint Louis University (SLU) in St. Louis, MO. My thesis at SLU was a case study based on a bowing line segment within a squall line that produced severe weather in eastern Missouri. I earned a music scholarship while at SLU, singing bass with a small a cappella group called the Mastersingers.

Shortly after earning my M.S. degree from SLU, I became an intern with the National Weather Service (NWS) in Dodge City, KS in December of 1998. I was also the organist at the First Presbyterian Church in Dodge, City. After about a year in Dodge City, I moved to Jackson, KY as a general forecaster with the NWS, and about a year and a half after moving to Jackson, I became a lead forecaster at the same office. After nearly five years in eastern KY, I returned to the Central Plains to work as a lead forecaster at NWS Hastings, NE. I especially enjoy interrogating radar data during severe weather events. I spend as much time as I can with my partner of six years and my two large dogs, including a 140 pound male great pyrenees named Luca and a 95 pound female black lab mix named Morley. I am once again singing bass with a small Renaissance a capella group here in Hastings, NE and continue to be a fanatic about weight lifting. I fervently appreciate early music and I have even gone so far as to name my dogs after Renaissance composers (Luca Marenzio and Thomas Morley). I also own two harpsichords. I still try to spend time on my mountain bike, playing tennis, and play the occasional softball game. I enjoy my life in south central Nebraska and have met many good people here. I feel very much at home.

Old Fashioned Wheat Harvest - by Shawn Rossi/Joe Guerrero



Saturday, July 9th marked the 16th annual Old Fashioned Wheat Harvest at Clifford Roach's Farm in Alton, Kansas. What began as a family affair in 1996, quickly evolved into a community event by the early 2000's, drawing nearly 150 people from 3 different states in 2011. The first few years Clifford used the wheat harvest to gather his family together, but with so many onlookers passing by on the county road, stopping for a few moments to watch Clifford and his sons using the antique equipment, Clifford soon welcomed the onlookers to join the family and celebrate the past.

Four different generations of the Roach family were represented at this year's event, led by farmer Clifford Roach, who is also the official cooperative weather observer for the National Weather Service in Alton, Kansas. In addition to Clifford's four sons and one daughter, 5 of Clifford's grandchildren and 7 of his great grandchildren roamed the farm during the festivities.

While 2011 marked the 16th year of the Old Fashioned Wheat Harvest at Clifford's farm, this was the first year that Clifford was able to incorporate mules into the event. Maude and Kate, the two full blood sister mules brought to the event by Norris Maydew of Lebanon, Kansas, began the event demonstrating an old fashioned wheat header. After this demonstration, several old fashioned machines were used to harvest the wheat field, with the five machines being operated by Clifford and his 4 sons. While working consecutively, it took approximately 1 hour to harvest the five acre field, yielding a total of 100 bushels of wheat, far shy of the 60-70 bushels per acre Clifford would have harvested in a good year.

The weather played a significant factor in the poor yield for 2011, with a dry April stunting the development of the wheat, and a hail storm on the evening of June 1st, heavily damaging the crop. While Clifford's crop was only partially damaged from this hailstorm, some of the nearby fields managed by his sons lost 100% of their wheat crop that night.

In addition to harvesting wheat, Clifford demonstrated the use of an antique tractor attached to a circular saw to cut wood with ease. The event also included Maude and Kate demonstrating the use of a mule drawn plow to overturn the field, a manure gun firing candy to the children, and was topped off with ice cold root beer floats provided by the Roach family.

In 2006, Clifford sold all of his "real" equipment, and now he just plays. According to Clifford's daughter-in-law Deanna, "You can see these same machines in a museum, but it's not everyday that you can see them working." In addition to his Old Fashioned Wheat Harvest, Clifford also has started an Antique Fall Corn Harvest, which is currently not open to the public.

While at the event, meteorologists Shawn Rossi and Joseph Guerrero performed the annual station check for the cooperative weather site, ensuring that the equipment remained properly sited and in good working order. While Clifford Roach has only been the cooperative weather observed for Alton since May of 2008, cooperative weather data for Alton, Kansas dates back to August 1st, 1903. Clifford is the most recent weather observer for the local area, and his dedication is helping the National Weather Service maintain a continuous and accurate climate record for Alton, Kansas dating more than 108 years.



How does a Radar work? - *Scott Gayer, Electronics Technician*



The RADAR system sends out a 750 Kilowatt burst of radio energy.

When the radio signal hits an object (dust, bugs, precipitation, smoke, aircraft, etc.) the signal bounces in all directions. A small portion is then received by the radar antenna. The returned signals are sent to a computer which processes the information to filter out anomalies. The time difference between when the pulse goes out and is received tells how far away the item is. The amount of signal received tells us how big or dense the item is, and it can track motion. The National Weather Service in Hastings operates a Doppler radar located in Blue Hill.

The radar fires approximately 1300 times a second then listens the rest of the time. If you were to add up all of the time it was transmitting over an hour it totals about 7 seconds.

The radar system has several “programs” it can run depending on what type of weather the office is tracking. The fastest program takes about 4.5 minutes to complete. In these 4.5 minutes the dish scans 14 different slices of the sky at different tilts from 0° to 19.5° above the horizon. It then sends the entire scan out to the office for processing. The slowest takes about 10 minutes to complete just 5 tilts. The slower the dish turns the further it can “see.” It can currently scan approximately 250 nautical miles or about 288 statute miles away.

It's Not Goodbye, It's See You Later...

Longtime WFO Hastings HMT Larry Wirth passed away Monday, July 25, 2011 after a four year battle with colon cancer.

Larry was born March 20, 1950, in York, NE to Eugene and Norma (Menssen) Wirth. He grew up in Kearney, graduating from Kearney High School in 1968. He entered the United States Marine Corps on Jan. 27, 1969 and received his honorable discharge on Jan. 29, 1979. He was united in marriage to Peggy Jensen on Aug. 21, 1976, in Overton. The couple made their home in Jacksonville, N.C., while he was serving his country. Following his military service, Larry worked as a meteorologist for the National Weather Service, working in Kansas City and Alliance for 11 years then Scottsbluff before coming to Grand Island in 1991. After closing the Grand Island office in 1993, he worked at the Hastings office until the time of his death.



Larry received many awards over his 42 years of federal government service for his excellence in job performance, media communications, and professionalism as it related to his work. He was a member of the Cooperative Observer Team, dedicated to the observers and the valued information they provided. He successfully nominated two observers for major national awards and although few are selected from across the nation, his observers were chosen and a memorable award ceremony followed. His proudest moment was during the 1980 Grand Island Tornado outbreak, where he observed the storm from the Alliance radar. As the storm barreled down on the city, and made a sudden turn back towards the Grand Island office, he alerted the staff and averted injuries and loss of lives. He received the United States Department of Commerce Bronze Medal Award for his Superior Federal Service for the voluntary service he provided during the FEMA-post-disaster relief operations after Katrina and Rita in 2005.

He will be remembered for his humility, sense of humor, curiosity for life, moral character, and the love and pride of his family.

Decision Support Services on Display This Summer - Mike Moritz, WCM

In support of the record floods on the Missouri and Platte Rivers, meteorologists from NWS Hastings spent much of the summer providing specialized weather and flood information to the Nebraska Emergency Management Agency (NEMA). This type of enhanced weather effort is at the forefront of becoming a “Weather-Ready” nation through local NWS offices providing Impact-Based Decision Support Services (IDSS) to various local, state and federal agencies.

Excessive snowmelt runoff combined with heavy late spring rains resulted in widespread flooding along the Platte and Missouri River basins across Nebraska. Beginning on June 7, NWS Hastings meteorologists provided daily weather briefings to the Incident Commander, political dignitaries, the Nebraska National Guard and have also worked with various state agencies coping with flood related requests at the Emergency Operations Center (EOC) in Lincoln, NE. Of critical nature were river stage readings at downstream gaging stations due to releases at several reservoirs along each river basin, and what types of impact the river level would have on critical infrastructure, homes and levees. In addition to flood related information, NWS meteorologists provided information during a widespread severe weather outbreak on June 20th, during which over a dozen tornadoes occurred in south central Nebraska alone. In early July, support shifted from on-site in Lincoln to remote methods. Eventually, the NWS office in North Platte provided additional weather briefings. In early August, NEMA felt conditions had eased enough to allow the enhanced weather support services to end.

This is a great example of several initiatives. First, the NWS is committed to providing the best weather information services possible, especially in near-term situations which can have a significant impact to life, property or disaster planning. Second, the NWS has placed a higher standard on working with our local, state and federal partners during these types of events knowing weather information and interpretation is critical to mitigating disaster impacts. Finally, it truly does help our nation become “Weather-Ready” by providing critical decision makers (i.e. emergency managers) with weather information services which can help them meet the needs of their constituents. This also allows our forecasters to experience first-hand how and why the weather information services are used, and provide valuable feedback for future improvements.



Nebraska Governor Dave Heineman, seated at right front, hears Al Berndt, Assistant Director of NEMA Operations Center, standing at right, brief on the Platte and Missouri River Flooding in Nebraska. Also pictured to the left of the governor is Jeremy Wesely (in red), NWS Hastings Lead Forecaster.

Come see us at the Nebraska State Fair!

It's Fair Time, the Nebraska State Fair that is.

The NWS Hastings will again be at the Nebraska State Fair in Grand Island, NE. The fair runs from 9:00 am to 9:00 pm each day from August 26 through Labor Day (the fair closes at 7:00 pm on Labor Day). This is your chance to meet the meteorologists and technicians from the NWS Hastings. This year, personnel from 4 different offices serving Nebraska will be in the booth; Hastings, Cheyenne, North Platte and Omaha/Valley. So, if you want to talk weather, we have the state covered from end-to-end!

Again this year, our booth will feature a Van de Graaff generator ("lightning ball"), live radar, giveaways, drawings and information about weather and safety. You can probably pick up a Tootsie Roll or two. The booth will be located in the southwest corner of the Exhibition building on site Q112, or in the same spot as last year. We look forward to seeing you and saying "hello".

Science and Operations Officer Rick Ewald (r) from NWS Hastings observes a young lady enjoy her turn at the Van de Graaff generator at the NWS Booth.



Weather Word Search

E	T	W	X	C	R	W	S	Y	O	M	A	P	S	G	D	I	F	S	N	D	S	W	D	R
C	V	N	Y	N	E	A	I	U	G	Z	Z	R	N	C	N	U	S	I	E	N	A	E	O	R
O	I	A	O	G	O	L	I	N	L	R	O	L	W	T	R	S	M	G	O	R	N	P	E	F
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N	E	O	Q	X	I	P	U	I	I	I	Z	F	S	T	A	R	E	L	U	T	O	L	X	T
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W	L	K	G	D	I	O	N	A	S	T	R	C	E	J	T	O	N	E	S	C	O	T	D	C
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O	M	Y	G	F	E	R	R	R	H	R	V	M	U	K	N	I	A	R	D	O	R	S	A	L
X	V	U	D	I	M	P	R	T	H	A	I	L	B	L	I	Q	O	H	Z	O	M	E	T	B
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C	Z	S	A	D	W	L	A	N	C	I	T	S	I	G	O	L	O	R	O	E	T	E	M	A

AIR MASS
AIR PRESSURE
ALTITUDE
ANEMOMETER
ANEROID BAROMETER
ATMOSPHERE
BAROMETER
BLIZZARD
CELSIUS
CIRRUS
CLIMATE
CLOUDS
COLD
COLD FRONT

CONDENSATION
CONVECTION
CUMULUS
DEGREES
ENERGY
EVAPORATION
FAHRENHEIT
FORECASTS
FREEZING RAIN
FRONT
FUJITA SCALE
HAIL
HEAT
HURRICANE
JET STREAM

LATITUDE
LIGHTNING
MAPS
METEOROLOGIST
METEOROLOGY
NIMBUS
OCCLUDED FRONT
OZONE
PRECIPITATION
RAIN
RAIN GAUGE
SLEET
SNOW
STATIONARY FRONT
STORMS

STRATUS
SUN
THERMOMETER
THUNDER
THUNDERSTORM
TORNADO
TYPHOONS
WARM
WARM FRONT
WATER CYCLE
WATER VAPOR
WEATHER
WIND
WIND VANE

Fall Outlook Indicates Slight Signal Favoring Above-Normal Precipitation

Averages From 1981-2010 Data	Average High/Low September 15	Average High/Low October 15	Average High/Low November 15	3-Month Total Average Precip. (Sep.-Nov.)	Average Date of First "Hard" Freeze (28°)
Grand Island	79° / 53°	65° / 40°	50° / 27°	5.26"	Oct. 15
Kearney	77° / 50°	65° / 38°	50° / 25°	5.13"	Oct. 16
Ord	79° / 49°	64° / 37°	49° / 24°	5.44"	Oct. 14
Franklin	79° / 52°	67° / 38°	52° / 26°	5.24"	Oct. 15
York	80° / 52°	68° / 38°	51° / 26°	6.09"	Oct. 21
Smith Center KS	83° / 55°	69° / 41°	54° / 28°	5.14"	Oct. 20
Plainville KS	81° / 53°	68° / 40°	54° / 28°	4.97"	Oct. 27

The Fall Outlook from the Climate Prediction Center favors warmer than normal temperatures for the Central Plains, and a slight edge toward above-normal precipitation.

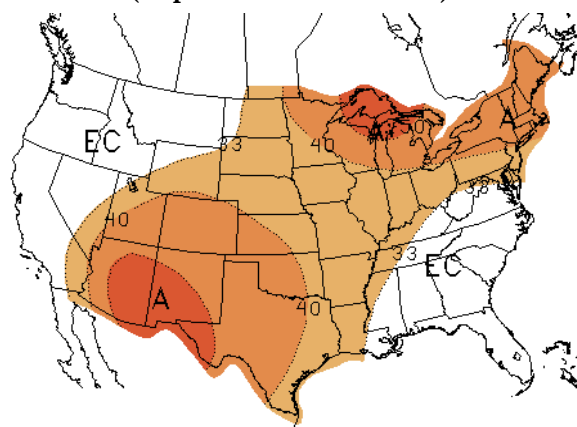
Time Frame: The NWS considers the "Fall" season to be all of September, October and November. Although this differs slightly from the astronomical summer season, focusing on these three calendar months is convenient when referencing meteorological data.

Temperature: These outlooks reflect averages for the *3-month period as a whole*. We tend to view temperatures in a daily or monthly normal, but the 3-month outlook reflects the entire 90-day average temperature. **Red/Orange** colors represent "**warmer**" than normal. **Blue** colors represent "**cooler**" than normal. The white area labeled "EC" reflects places with "Equal Chances" of having above, near or below normal temperatures. Forecast signals lean toward a better chance of warmer than normal temperatures for South Central Nebraska and North Central Kansas.

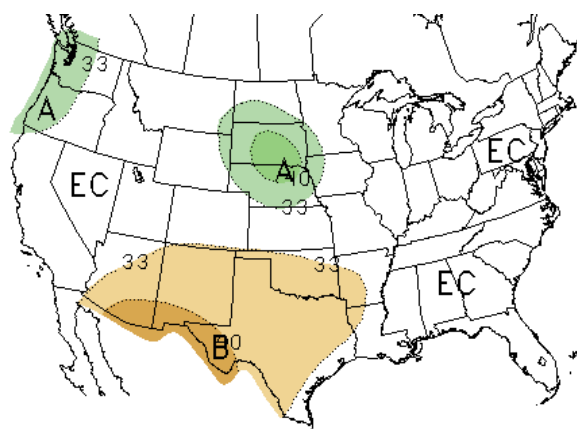
Precipitation: Similar to temperature, the precipitation outlook depicts the total precipitation for the entire 3-month period, and is independent of individual days or months. **Green** colors represent "**wetter**" than normal and **brown** colors represent "**drier**" than normal. In this case, there is at least a weak forecast signal favoring above-average precipitation across South Central Nebraska. This area extends into the Dakotas. More specifically, within the green 33% to 40% area across much of South Central Nebraska, this means there is a slightly better than average chance of having a season that's uncommonly wet. However, that still means there is a 33% chance of having near-normal precipitation, and at least some chance of being uncommonly dry.

To recap, the outlook for Fall (Sep.-Nov.) calls for above normal temperatures and gives a slight nod toward above-normal precipitation.

Temperature Outlook for Fall 2011
(September-November)



Precipitation Outlook for Fall 2011



Find more information about the Climate Prediction

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Vic Schoenhals

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Gary Keller (*In Memoriam*) • Scott Gayer

Meteorological Interns / Hydrometeorological Technicians

Briona Chester • Joe Guerrero

Larry Wirth (*In Memoriam*) • Mike Reed



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Cindy Fay • Shawn Rossi

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